DD Supporting Evidence: EJP15

Preheat on Offtakes and PRS

Contents

1 Executive Summary

We note Ofgem's draft determination feedback indicating they recognise the need for investment on our preheat assets; however, a full engineering assessment was not possible and have requested further data sources to support the assessment.

In our response we will:

- Explain the rationale of our preferred option and why alternative options do not sufficiently manage asset risk.
- Clarify how asset health scores have been derived and how they have been used in our modelling.
- Provide the global data deposit requested along with a SOP (standard operating procedure) that provides line of sight to our preferred option.

For clarity, the feedback provided by Ofgem for EJP15 – Preheat on offtakes and PRS is shown below (**Error! Reference source not found.**)

Feedback Source	Needs Case	Optioneering	Scope Confidence	Comments
RIIO-3 Draft Determinations – Cadent **Table 34: Summary of Cadent Engineering Recommendations**	Partially Justified	Partially Justified	Low confidence	Proposed Outcome: Partially justified. We have proposed alternative optioneering to minimise investment to maintain stable risk score. The additional data requested was not provided so unable, with any certainty, to corroborate intervention volumes or type. To allow for a complete assessment of the investment to be undertaken, we would expect to see asset data such as heater type, intervention mode, historical investment mode, asset health score at beginning of price control, asset health score at the end of price control, NARM score. This is required to demonstrate investment need and create scope confidence.
22nd July Ofgem Engineering – Cadent Bilateral	• No additional actions			

Table 1: Specific EJP15 feedback from the RIIO-3 Draft Determinations Cadent Annex

2 Introduction

This document provides additional information in response to Ofgem's engineering review comments in Table 34 of the Draft Determination (July 2025) and feedback received at the bilateral on 22nd July 2025. It addresses concerns regarding asset data reconciling to the preferred engineering option, S02 – Whole life net benefit with RIIO-2 spend cap. This response outlines our methodology for forecasting intervention volumes, clarification of asset health scoring and re-framing our preferred option in the context of asset risk.

3 Draft determination responses

3.1 Global data

For this EJP, Ofgem deemed it partially justified due to insufficient data, as per Table 34 of the Cadent annex in the draft determination. Cadent is committed to providing further information and clarification through our Draft Determination response and through the ongoing bilateral discussions, and as such we have provided the requested data.

This assessment and comment form Ofgem was common across the mechanical assets. We therefore have provided a unified response on the process for modelled investment, a procedure for the interpretation of the asset workbook, and the workbook containing asset data. Please refer to the other documents submitted within this DDQ response for the specific documents:

1. DD – Mechanical process narrative
2. DD – Mechanical – SOP
3. EJP15 – DD – DATA – Preheat on Offtakes and PRS', which includes a summary tab where asset health score can be found, and a tab for LTR (Long Term Risk) definitions.

3.2 OFGEM alternative optioneering programme

Our preferred Preheat programme protects network health and delivers sustainable value over alternative reactive programmes. We acknowledge OFGEM's proposal for an alternative programme option of S07 – minimum investment for stable risk. This programme option invests in cost effective interventions to prevent monetised risk increasing beyond the end of our RIIO-2 monetised risk position. It does not prevent asset risk increasing and therefore could mask underlying asset deterioration which leads to higher future costs and declining network resilience.

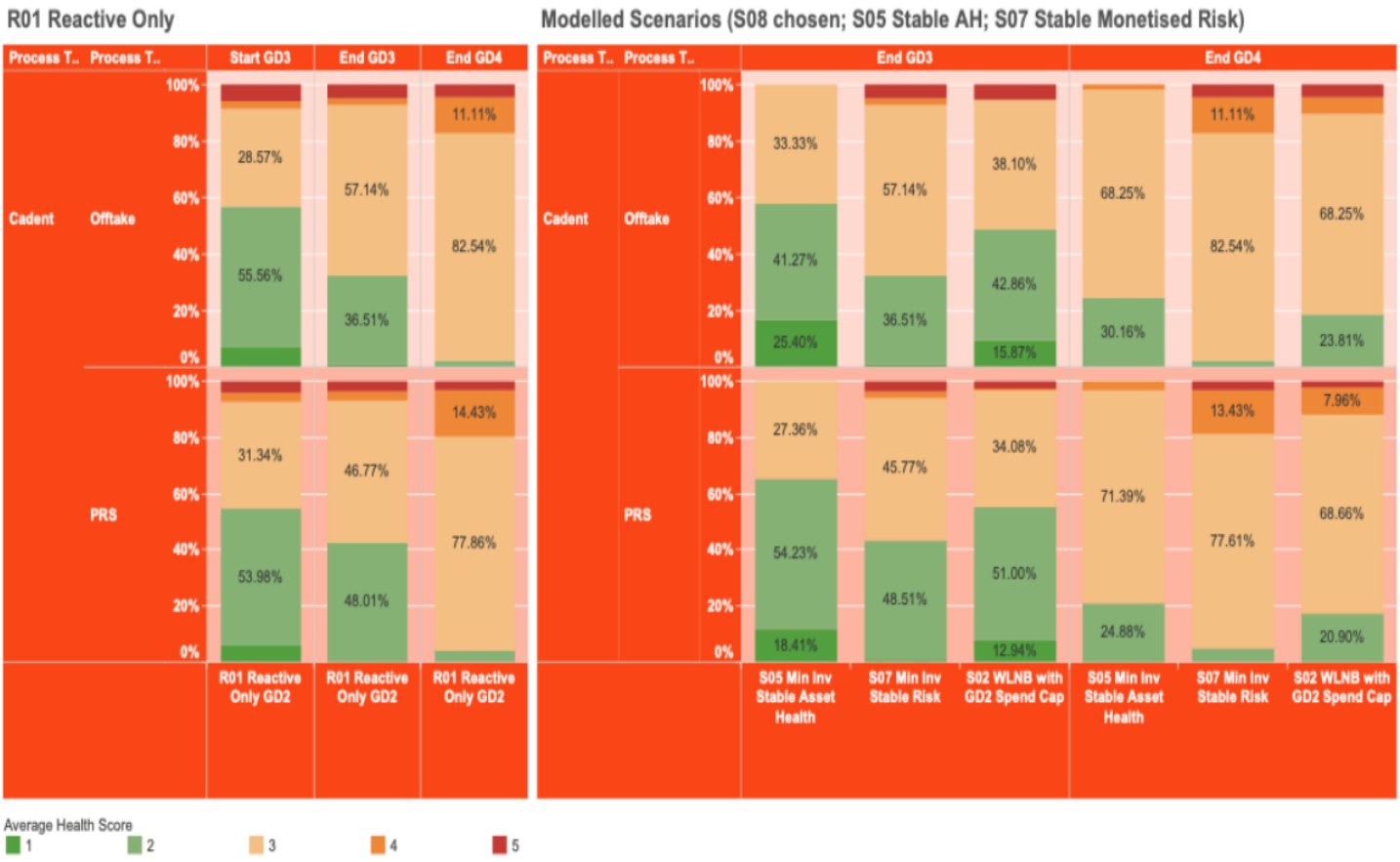
The below tables and graphics compare this proposed alternative programme option against the reactive baseline (R01), our preferred programme option (S02), the minimum investment for stable asset health (S05) and minimum investment for stable risk (S07), showing the position at the start of RIIO-3, end of RIIO-3 and end of RIIO-4.

Table 2 compares how the four programme options vary through the application of different constraints (see DD – Mechanical process narrative, section 4.5 – scenario definition and optimisation).

Investment Scenario (Constraint)	Scenario Description	How the scenario / constraint works in the model	CAPEX (£m)
Reactive only	No proactive investment in our preheat systems	Used as baseline for volume and cost of repairs, and monetised risk position	[redacted]
Maximise Whole Life Net Benefit (WLNB) within RIIO-2 Spend Cap	Invest in assets with the highest net present value (NPV) within the RIIO-2 spend cap[1], assessed to 2050.	Prioritises systems with greatest NPV (2027–2050), ensuring spend stays within RIIO-2 cap.	[redacted]
Maintain Asset Health Levels	Target poor health assets (score 4 or 5) and stabilise network health to 2024/25 levels.	Selects assets forecasted to exceed score 3.9 by RIIO-3 end; maintains average health baseline at lowest capex.	[redacted]
Maintain Asset Risk Levels	Keep overall monetised risk (safety, supply, carbon, repair) at or below RIIO-2 levels.	Invests in cost-effective interventions to prevent monetised risk increase, while recognising ongoing asset deterioration.	[redacted]

Table 2: Programme options comparison

[1] The GD2 spend cap is based on our RIIO-2 outturn spend.



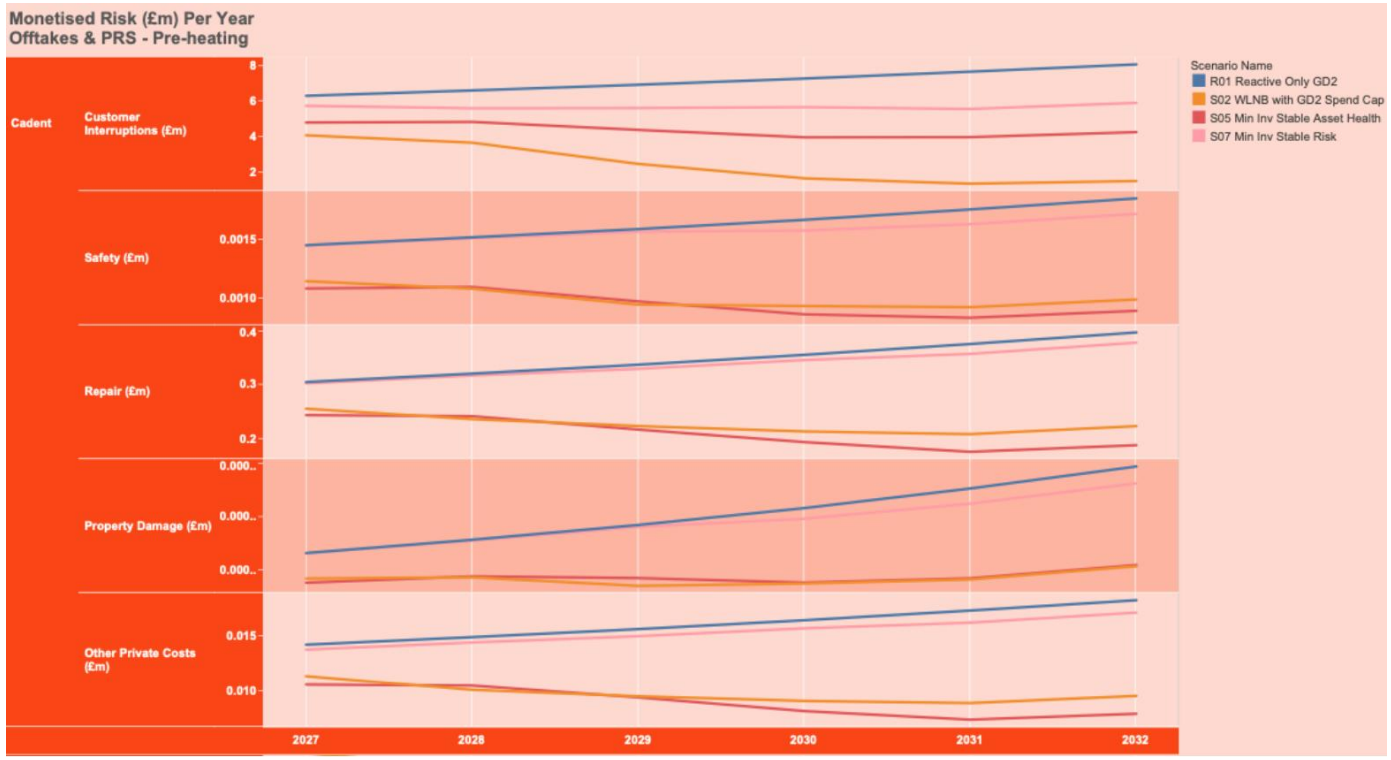
The above graphic shows how the distribution of asset health grades (1–5), which are explained further on the summary page of EJP15 - DD – DATA – Preheat on offtakes and PRS, for preheating systems changes across the RIIO-3 and RIIO-4 periods, under four of our programme scenarios. Under the reactive only scenario, there is a noticeable shift from assets with better health grades (grades 1 and 2) moving to the poorer health grades (3, 4, and 5), highlighting the natural deterioration that occurs without any proactive investment, over a 10 year period, out to the end of RIIO-4. Therefore, the CAPEX that would be required to stabilise asset health or return to RIIO-2 end health position would be significant.

Our S02 programme scenario (WLNB within a RIIO-2 spend cap), demonstrates a more balanced health distribution, with a slower rate of declining health and a greater proportion of assets remaining in health grades 1-3.

The stable asset health scenario (S05) completely removes assets in the health score four and five categories, and this is consistent over a ten-year, RIIO-3 and RIIO-4 period. However, to achieve this, the expenditure doubles in comparison to S02 and exceeds Ofgem's expectations of keeping RIIO-3 spend broadly stable to RIIO-2.

The stable risk scenario (S07), although maintaining overall monetised risk, allows asset health to degrade in a similar way to the reactive only approach (R01), demonstrating that stabilising monetised risk does not equate to maintaining physical asset health.

Overall, the graphic supports the case that targeted investment, as seen in our preferred S02 scenario, helps slow deterioration. It also underlines that stable monetised risk strategies may obscure underlying asset deterioration, leading to future spikes in capital expenditure to restore asset health and integrity.



Scenario Name	Start GD3	End GD3	End GD4
R01 Reactive Only GD2	2.64	3.15	3.67
S02 WLNB with GD2 Spend Cap	2.55	2.82	3.42
S05 Min Investment Stable Asset Health	2.43	2.66	3.30
S07 Min Investment Stable Risk	2.63	3.12	3.65

Figure 1: Monetised risk position

Our preferred Preheat strategy (S02) delivers lower risk and better asset health by end of RIIO-3 compared to high-cost or reactive scenarios. The above chart illustrates the monetised risk over time for the impact to safety and security of supply as a result of the four programme scenarios. It demonstrates that focusing on stabilising monetised risk isn't enough to keep our assets from physically deteriorating and is broadly comparable to the reactive investment only scenario (R01). Asset risk levels can be influenced by things like downstream impacts or larger sites, which means the physical condition of assets can still deteriorate even if the overall monetised risk looks stable. Over time, this can lead to more faults, increased reactive spending, and bigger capital investments down the line to fix the network and bring it back to an acceptable level. S02 and S05 are both favourable in reducing monetised risk, with S02 better managing customer interruptions. S02 reduces monetised risk within the bounds of RIIO-2 expenditure, while S05 doubles our RIIO-2 expenditure.

That's why our approach looks at striking a balance between reducing risk, maintaining asset health, and delivering long-term value. Looking at the other scenarios, (R01) reactive only case shows a sharp increase in average asset health, from 2.64 to 3.67 due to no proactive RIIO-3 investment. Our preferred S02 scenario also sees some decline, owing to an expenditure cap, but it's far less severe. The S05 stable asset health scenario proves that with the right investment, we can keep asset condition stable through RIIO-3, but at a cost. Finally, the S07 monetised risk stable scenario, despite aiming to sustain monetised risk, ends up with similar deterioration to R01, reinforcing the point that managing monetised risk alone doesn't protect asset health.

4 Conclusion

In summary, our preferred Preheat strategy (S02) offers a balanced and sustainable approach to managing asset health and risk across the RIIO-3 and RIIO-4 periods. The evidence provided demonstrates that while alternative scenarios such as S07 may maintain monetised risk, they fail to prevent physical asset deterioration, ultimately leading to increased future costs and reduced network resilience.

Through the submission of detailed global asset data, a supporting SOP, and a comprehensive process narrative, we have addressed Ofgem's concerns regarding scope confidence and investment justification. Our modelling shows that targeted investment under S02 slows deterioration, maintains a healthier asset base, and delivers long-term value within the RIIO-2 spend cap.

We believe this response reinforces the engineering rationale behind our preferred option and provides the necessary transparency and data to support a fully justified investment case for preheat assets on offtakes and PRS.